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PRACTICAL  
HOG  
HOUSES



**P**ROPER housing is an important factor in the successful raising of hogs. Too often this is neglected, when little expense and effort would be required to provide good, serviceable, well-ventilated houses which give ample protection from cold and admit much-needed sunshine. In the following pages are presented plans for the construction of farrowing and shelter houses and instructions as to how they should be built to be most effective.

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Washington, D. C.

Issued May, 1926

# PRACTICAL HOG HOUSES

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## CONTENTS

	Page		Page
Proper shelter necessary for hogs----	1	Individual houses -----	8
Sunlight and ventilation essential--	2	The box-type house-----	9
Farrowing houses -----	2	The A-type house-----	10
Central farrowing house-----	3	General hog shelter-----	10
Farrowing house for northern con-		Shade for warm weather-----	11
ditions -----	5		
Farrowing house for southern con-			
ditions -----	7		

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## PROPER SHELTER NECESSARY FOR HOGS

**T**HE GROWING OF HOGS has proved to be so profitable a part of farm activities that the business has extended to practically every part of the United States. With the increase in the number of hogs raised and the extension of the territory in which they are produced there has come recognition of the fact that they must be properly housed if the business is to show the profit to the producer which it is capable of showing.

One of the essentials in profitable hog production is that pigs be started well in making a uniform and rapid growth and continue consistently from the time they are farrowed until they reach the market. A good start can not be made unless proper quarters are provided for them at farrowing time and during bad weather at other times.

The same kind of housing for hogs does not apply to all parts of the country. Naturally, where the winters are long and cold and snowstorms are frequent, warmer, and more perfectly weatherproofed buildings must be constructed than is necessary in the South, where the temperature seldom gets below freezing and a snowstorm is rarely if ever known. In the South, however, during the winter season, frequently there are cold rains, during which hogs suffer greatly if exposed and unprotected.

There is no building on the farm that gives so great net returns year after year for the expenditure incurred as a good hog house, yet the hog house frequently is the most poorly constructed building on the farm. There may be good horse barns and cattle sheds, but hog houses are generally poorly planned and poorly constructed.

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<sup>1</sup>The writer acknowledges the valuable assistance of S. S. Buckley, Associate Animal Husbandman of the swine office, in the preparation of the material for this bulletin. Acknowledgment is made also of the assistance of the Division of Agricultural Engineering, Bureau of Public Roads, in the preparation of all drawings and plans shown in the bulletin. Anyone desiring working plans for any of the structures shown in this bulletin should write direct to that division, referring to the design number under the illustration.

One of the chief criticisms which may be made against the average hog house is that it is poorly lighted and ventilated, if in fact any provision at all has been made for ventilation.

The horse and foal, cow and calf, and the sheep and lamb all are protected by nature with a good coat to shelter them from inclement weather. Even the chicken is well protected by its feathers, but the hog and the little pig have practically no covering of their skins to shield them from the weather. In the early history of our country all farm livestock was to a greater or less extent unprotected and provided with little in the way of good houses. On most farms then and on too many at present anything in the way of a shed is considered good enough for a hog.

#### **SUNLIGHT AND VENTILATION ESSENTIAL**

Many farmers have realized the necessity for good housing for hogs and have attempted to make provision for it, but in constructing buildings they have often neglected at least two main essentials, sunlight and ventilation. This applies in particular to houses which are to be used for farrowing purposes. If little pigs are to get the right kind of a start in life, they must have plenty of sunshine.

Some hog houses that have cost large sums of money for construction have proved to be very unsatisfactory in winter, simply because they were not provided with proper ventilation. If any considerable number of hogs are kept in a house in winter and proper ventilation is not provided, there is an accumulation of frost on the ceiling, which melts during the day and causes the bedding and house to become damp and foul.

Many houses are constructed on a plan that permits ventilation through windows in the roof or at the doors in the ends of the alleyways. If houses are ventilated by the use of windows at the roof the warmed air easily escapes and the tendency is for such houses to have sudden changes of temperature. If the ventilation is obtained by means of windows and doors at the ends of the alleyways, there may be drafts which may be very harmful to the young pigs and even to older hogs.

Careful attention should be given to the location of every house used for hogs. Place the house where the water will drain away freely. If it is on a hillside dig a good ditch on the uphill side and keep it open. If it is built on rather level ground make a filling so that the floor will be at least a foot above the level of the surrounding ground. Provide ditches with good outlets on each side of the house and at a distance of several feet for maintaining a dry floor.

#### **FARROWING HOUSES**

There are two general plans of houses to be used for farrowing purposes—the central house, which provides for a number of sows under the same roof, and the individual house, which can be used for one sow only. Both the central and the individual houses have their merits, and hog men have used both with success. In many instances, however, a combination of the two seems desirable. This is obtained by having the pigs farrowed in a central house and removing them to the individual house when they are a week to 10

days old. Regardless of the kind or type of house used, the construction must be such as to make them warm and dry and to prevent cold air from blowing under the floors. After little pigs are 3 or 4 days old they will withstand a lot of hardship, but they must not be forced to remain in quarters that are not dry and comfortable.

For the comfort of pigs a temperature of approximately 50° to 60° F. is desirable. In many parts of the United States this temperature can not be maintained in winter except by means of artificial heat. A small coal-burning stove, in which hard coal is used, is very satisfactory. The heat is more uniformly continuous and the danger of fire greatly lessened than if wood, cobs, or soft coal is used.

Good farrowing houses need not be expensive. Too many expensive fixtures and articles of equipment oftentimes really detract from the efficiency of the house.

The farrowing pen in every type of farrowing house should be protected by a guardrail on each side. When a guardrail is pro-

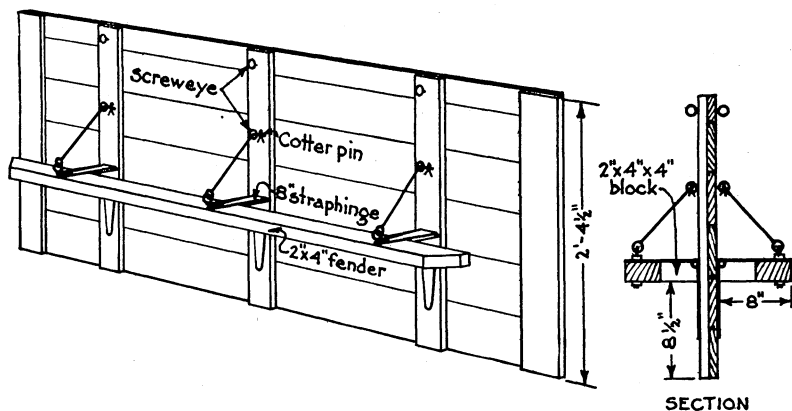


FIG. 1.—Guardrail to prevent sow from crushing pigs. (No. 2122)

vided, the sow in lying down is not able to crush her pigs against the side of the pen. The rail should be about 9 inches from the floor, providing a space between it and the side of the pen so that a little pig may get out if caught under the rail when the sow lies down.

#### CENTRAL FARROWING HOUSE

The advantages which central houses have over individual houses are that the herdsman may look after and feed a number of sows in the same place and that artificial heat may be more easily provided when necessary. Sunlight is a great factor in getting little pigs started right, and with proper planning it can generally be more effectively provided in the central house.

There are two common types of central hog houses that are desirable. Both types should extend lengthwise from east to west, with outside doors entering the south pens and without openings of any kind on the north side. One such type of house is planned with two rows of pens separated by an alley which passes through

the middle of the building. The roof is constructed so that a series of windows will supply light to the north pens. The other type is built with a single row of pens on the south side, with an alleyway back of them. The pens are lighted both by windows in front and in the roof.

The construction of a central farrowing house for use in the northern parts of the United States should be different in design from one to be used in the South, because of the necessity for greater warmth and because the sows and pigs must remain indoors more consistently on account of weather conditions. This bulletin shows plans of two different types of houses, Figure 2 for the North and Figure 3 for the South. Both houses have two rows of pens with an alleyway and are so constructed that plenty of sunlight is admitted. Ventilation is so provided that all doors and windows may be closed when desired.

Do not feed suckling pigs in the pen with the sows. It is extremely important in any farrowing house that an outside pen or space be provided for feeding the brood sow when she is suckling her litter. In her eagerness for feed a sow may trample and kill or cripple a pig, if fed in the pen with her litter. When outside pens are provided the probability of causing the bedding to become foul and damp, endangering the health of the young pigs, is lessened. White scours in young pigs is an extremely fatal affection and one that is liable to occur in feed-soiled pens where considerable dampness exists. The houses recommended in this bulletin provide for the construction of outside feeding pens for each sow in the house.

The central farrowing house may be used for housing fat hogs or bred sows when not in use for farrowing purposes. This, of course, can be done much better when the partitions between the farrowing pens are removable, making greater floor space in one inclosure. If the partitions are not movable and the central house is used for housing bred sows, care must be used in preventing too many sows from occupying one pen. Overcrowding sometimes causes abortions.

The manner of construction of floors in a central farrowing house is important. In many houses floors have been constructed of concrete. However, the opinion of those who have used concrete in the pens and alleys of their farrowing houses is far from uniform as to the merits of the material. For some it appears to be entirely satisfactory; others assert that it is entirely too cold and damp. Concrete floors may be waterproofed by applying a coat of tar or a layer of tar paper between two layers of concrete at the time the floor is built.<sup>2</sup> The purpose of the tar layer is to prevent the passage of moisture from the soil through the concrete. In the protection against dampness of floors a layer of cinders, broken stone, or gravel, on which the concrete surface is applied, may be used. These act as underdrains and prevent to a considerable degree the passage of moisture through the concrete and aid materially in preventing dampness.

Wood is frequently used for building the floors of the hog house, but it is not a satisfactory material. It does not last long enough to make it economical; besides, it provides a good opportunity for rat

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<sup>2</sup> See Yearbook Separate 824.

harbors. It is insanitary and when built a little distance from the ground is entirely too cold. Hollow tile laid flatwise and covered with a thin coating (about one-half inch) of cement mortar makes a very satisfactory floor. The hollow spaces in the tile prevent the passage of moisture from the earth to the floor surface.

FARROWING HOUSE FOR NORTHERN CONDITIONS

An examination of the plan, Figure 2, for the house recommended for use in the North will show that it provides for plenty of sunlight; that it is built low and has therefore a minimum volume of

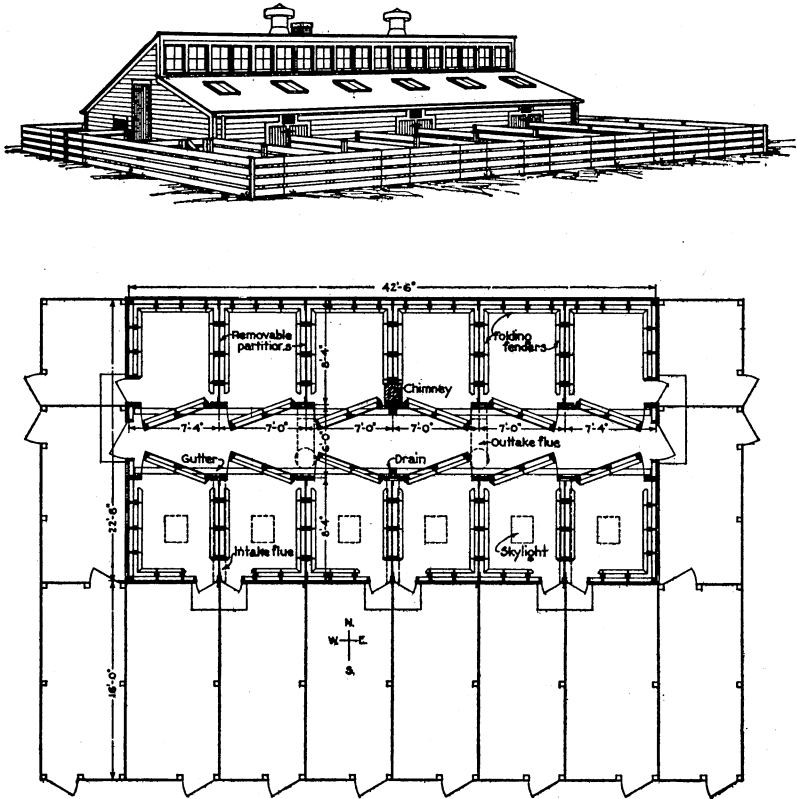


FIG. 2.—Hog house for northern conditions. (No. 2123)

space to heat, yet having plenty of height for permitting one to work comfortably at any place in the house. Build the house to face the south. The back or north wall is 2 feet 8 inches in height and the front or south wall is 4 feet from the floor to the top of the plate. All the outside walls are made double; that is, tongued and grooved sheathing is nailed to the studding, this covered with building paper, and the outside covered with 6-inch siding or grooved shiplap. The roof is of double construction also, except that the outside is shingled. This makes a building that is rigid and warm.

Provision is made in the south roof for a window over the center



of each pen, which furnishes direct light and sunshine to the pigs. The windows made with ordinary glass may be protected by a screen of heavy wire with a fairly close mesh. Windows made especially for this purpose, having ribbed or wire glass, may be purchased, and it is probable that this kind will be cheaper in the end.

The plan shows a solid row of windows in the offset between the north and south roofs. Many builders of houses of this type board up a part of this space. When this is done the amount of sunshine is reduced, which is not desirable. Provision is made for opening every third window, when desired, the rest being stationary.

The pens in this house are 8 feet 4 inches by 7 feet, except the two end pens, which are 7 feet 4 inches wide. When the space taken up by the guardrails is deducted it leaves the entire space 7 feet by 5 feet 8 inches. This may seem large, but if a sow does not have room enough to move around in the pen quite freely she is almost sure to step on some of the pigs. This must be avoided if possible. The guardrail is made by placing 2 by 4 inch studs flatwise at a distance of 4 inches from the sides of the pen and about 9 inches from the floor. This construction leaves an 8-inch space for passageway for the little pigs if caught between the sow and the side of the pen. Construct the guardrail securely so that it can not easily be broken.

The height of the pen is 30 inches and the partitions should be built by placing the boards close together between the pens. This prevents drafts of air from passing through the cracks and also keeps the sows in the different pens from restlessness caused by excitement in the other pens. Some sows are very nervous and are prone to jump up and move around when any disturbance happens to attract their attention. The partitions may be nailed in solidly or may be movable, as shown in the plan. If movable partitions are made they may be taken out and the entire floor made a single pen or as many as may be desired.

The alleyway between the pens is 6 feet in width, which permits the handling of the hogs much better than if it were narrower.

The plan also shows the construction of a brick chimney at the side of the alley. A stove may be placed in the alley and used when necessary. Hard coal is undoubtedly the best fuel to use in a hog-house stove.

Attention is directed to the plan showing the position of the doors leading to the outside pens. By placing the doors from two pens together there is a large amount of floor space over which there will not be drafts of cold air when the doors are open.

The outside feeding pens are planned to be 16 feet in length. A shorter pen might answer the purpose, though not quite so well. Securely fasten the door leading from the farrowing pen to the outside, either shut or open as desired, but do not let it swing freely. If it is so arranged that it can be opened or closed by the sow, some of the pigs may be fastened outside on a cold or stormy day and perish.

There are no doors in the north wall of this house. If doors are placed in the north walls of the houses used in the colder parts of the country, even though well built, they admit the cold air and sometimes during severe storms snow may drift in.

Proper ventilation is very necessary to the comfort and welfare of hogs, but it is often entirely neglected or improperly designed.

An examination of the plan will show that ventilators are provided on the north roof, directly over the alleyway. The fresh air intake is in the south wall directly over the center of each pair of doors leading from the farrowing pens to the outside. The outlet flue is on the north side of the alleyway, its lower end starting just above

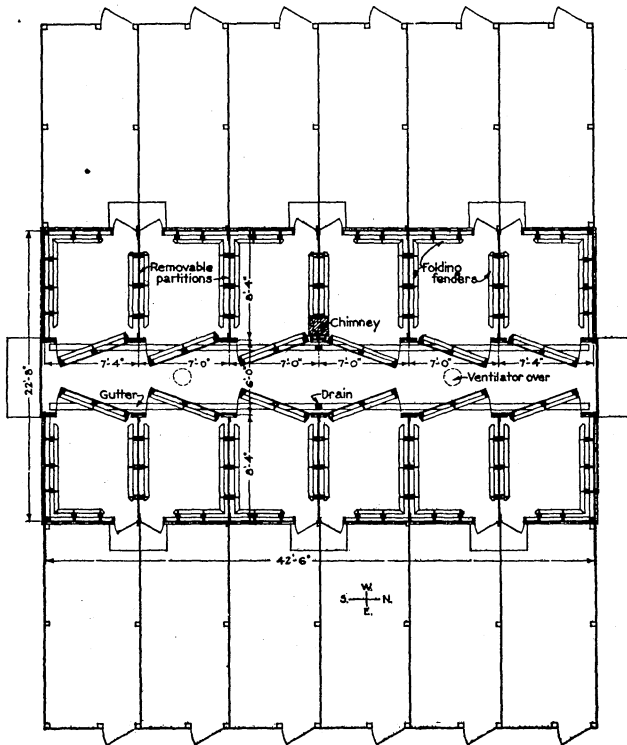
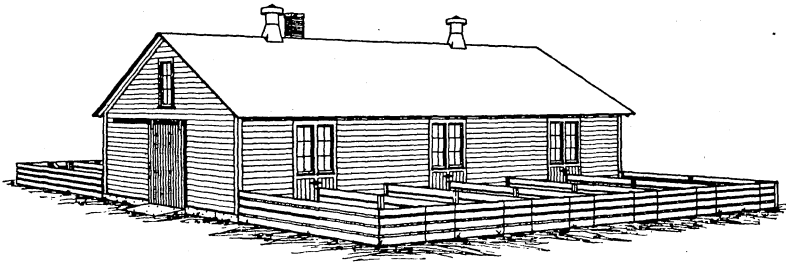


FIG. 3.—Hog house for southern conditions. (No. 2124)

the pen partitions, and boxed tightly up to the ventilator shown on the roof.

#### FARROWING HOUSE FOR SOUTHERN CONDITIONS

The farrowing house to be used in the South (fig. 3) is decidedly different in some respects from the one to be used in the North. The farrowing dates for the main portion of the pig crop are practically

the same in all parts of the country. Barring some exceptional days, the weather in the South at farrowing time is fairly warm. This, however, does not mean that the farrowing house need not be substantial and of weatherproof construction. The hog that makes the best profit for the producer is the one which gets a good start in life. If at farrowing time it is exposed to the cold rains that occasionally occur in the South it is liable to be stunted at an early age and never recover.

The farrowing house in the South should be sufficiently well built to be dry and warm, and should be well ventilated and contain plenty of air space. A gable roof provides for sunlight and ventilation and a good-sized window in each gable end permits a good circulation of air. There is no loft or storage space for hay or straw, the entire inside being open to permit free circulation of air.

The plan of farrowing house intended for southern conditions provides for placing it lengthwise north and south with side windows for each pen. It has a 6-foot alleyway with a sliding door in each end the full width of the alley. The outside feeding pens are placed both on the east and the west sides and they may be of such length as is desirable.

The plan shows the house to contain 12 pens. A house of this type may be made in any length by altering the number of pens to suit the convenience and accommodations of any particular farm. A chimney is provided in the drawing so that a stove may be used when necessary.

#### INDIVIDUAL HOUSES

The individual or colony type of house has many points to commend it and is regarded by many successful hog men as more desirable than the central house. There are two types of individual houses in general use, the box type and the A type. Both types should be well braced and substantially built to permit moving from place to place.

The individual house is used for farrowing purposes and for housing sows and their pigs after they have left the central farrowing house, usually when the pigs are a week old or more. This type of house serves also for housing the breeding herd and fattening hogs.

It is generally not advisable to keep a cross, fighting sow in the herd, but sometimes it is done because of her extra breeding qualities. Generally sows of this kind will raise more pigs when placed in an individual house to farrow and left entirely alone.

It is usually advisable to have a floor in the individual house, and in order that it may be warm the base of the house should be banked with dirt or straw to prevent the wind from blowing under it. The individual portable house is convenient on any hog farm because it may be moved about and placed in almost any lot or field. Sometimes several of the individual houses are placed in a single lot or paddock in order that a number of hogs may be properly housed.

In parts of the country where cold weather may prevail during the farrowing season a number of individual houses may be placed side by side in a row facing the south, and a temporary fence constructed some 4 or 5 feet behind them, filling in the space between the houses and the fence and between the houses themselves with straw as

high as the roof with the box-type house and as shown in Figure 4 with the A-type house. An arrangement of this kind adds very much to the warmth and the comfort of the pigs. Before covering the battery of houses with straw apply a covering of tar paper or other weatherproof material to the roof and back of the houses. This protects the lumber and adds considerably to the lasting properties of the houses.

When the weather is very cold at farrowing time one or more lanterns or a small oil stove may be suspended in the house, high enough to protect it from the sow, for raising the temperature so that farrowing may safely take place.

The individual house is built for warmth, and because of this it should not be used for hogs during hot weather. At this time it is best to close the doors and fasten them and provide natural or artificial shade for the hogs outside. If this type of house is built with hinged sides to raise for shade and ventilation its construction can not be rigid enough to withstand much moving. Furthermore, a shade of trees or a temporary shade covered with hay or straw is better than one built low and covered with boards.

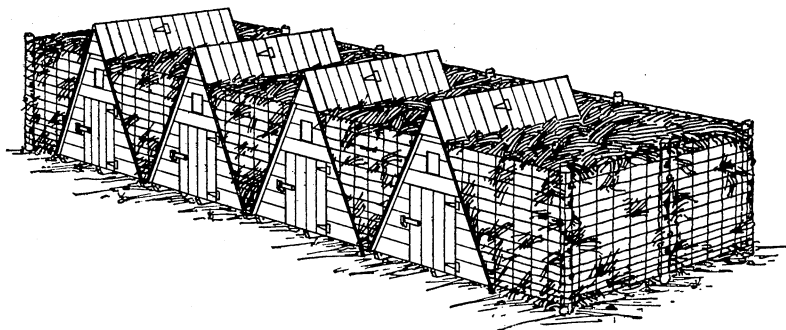


FIG. 4.—Method of packing straw between and behind hog houses for warmth. (No. 2125)

Both types of individual houses are set on sills 4 by 6 inches. The two outside ones extend 6 inches beyond the floor at each end. These sills are rounded and have a hole bored in each end into which a heavy wire may be fastened for the purpose of hitching a team and hauling the house where desired.

The doors in an individual house of any type should be not less than 30 inches wide and 36 inches high, so as to permit the largest hogs to pass in or out with ease.

#### THE BOX-TYPE HOUSE

The box type of house is preferred to the A type by many experienced hog men. Figure 5 shows a house of this type now successfully used at the United States Experiment Farm at Beltsville, Md. The size is 7 by 8 feet. One-half of the roof at the front of the house is hinged and may be thrown back over the rear half, allowing sunlight and excellent ventilation for the entire interior of the house. (See fig. 6.) This door allows the herdsman easy access to give any needed assistance to the sow or litter. A small hurdle can easily be used in the box-type house.

## THE A-TYPE HOUSE

The A-type house (fig. 7) is one that is in general use and is very satisfactory to many hog men. This house is constructed for the use of one sow and her litter; consequently it need not be large. Probably the most practicable size would be 7 feet each way, that is, the floor 7 by 7 feet and the sides made of 7-foot lumber. A house of this size is large enough and the roof of the right pitch to form a protection on each side for the pigs when the sow lies down. A roof with too much pitch would not give this protection. Both ends should be provided with guardrails.

It is not possible to have a great amount of sunlight in an A-type house unless windows are placed in the sides, which is hardly

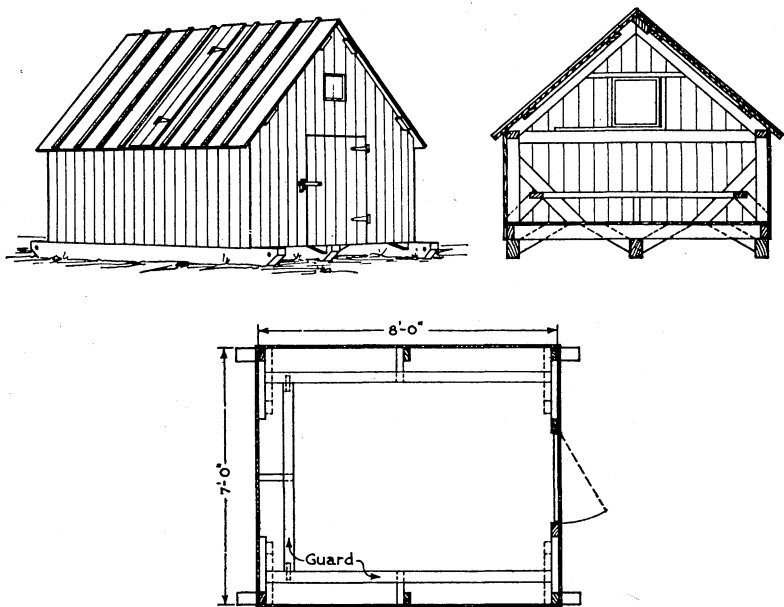


FIG. 5.—Box-type hog house. (No. 2126)

advisable. Some sunlight can be admitted, however, by having a window in each end. By facing the house south the pigs will be able to get considerable sunlight through the door when it is open.

## GENERAL HOG SHELTER

No special type or kind of building is necessary for housing fattening hogs or bred sows. Any building used for this purpose, however, must be dry and well ventilated and warm enough for comfort when it is well bedded.

If desired, the building may be built high enough for a loft for storing bedding. A floor is not necessary, but the level inside should be higher than the surrounding ground to prevent water from running in during excessive rains or when the snow is going off.

Figure 8 shows a small building which may be used for housing fat hogs or bred sows, or it may be used for sows and pigs after the

pigs are about 2 weeks old. It is 14 by 28 feet and is 4 feet high from the sill to the plate. This house will take care of 25 to 30 mature hogs. A house of this type may be constructed of any size to suit the requirements.



FIG. 6.—The box-type house; a convenient, well-lighted, durable, and portable hog house

#### SHADE FOR WARM WEATHER

Hogs must be provided with plenty of shade in warm weather. If the hog houses are high, with plenty of air space and ventilation,

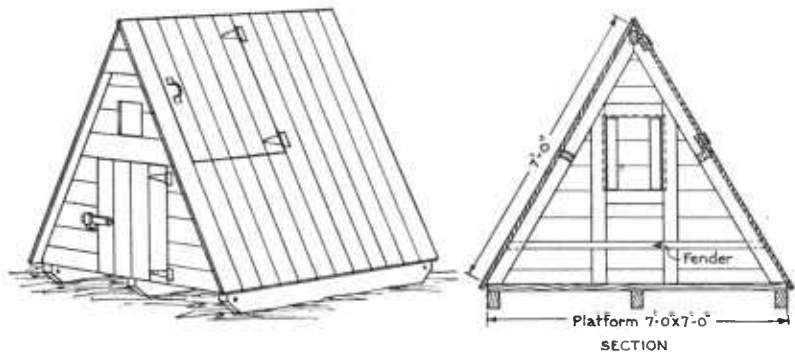


FIG. 7.—A-type hog house. (No. 2127)

such as the house shown for southern conditions (fig. 3), they can be safely used for hogs in warm weather; but if they are low and do not have a good circulation of air, such as the individual type house shown as Figure 7 and the central house for northern con-

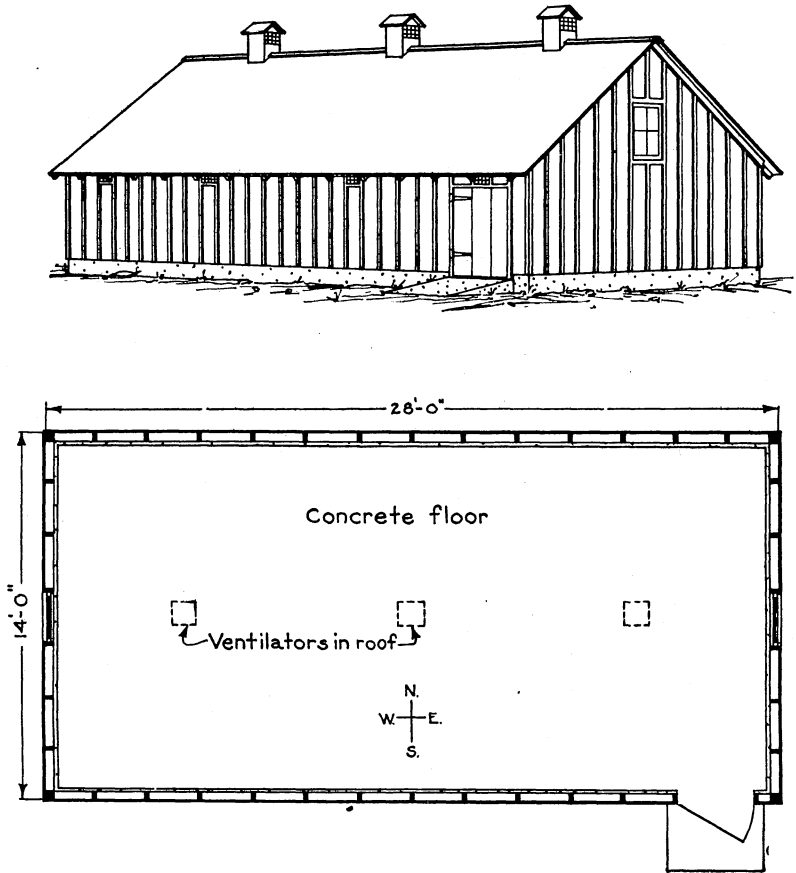


FIG. 8.—General hog shelter. (No. 2128)

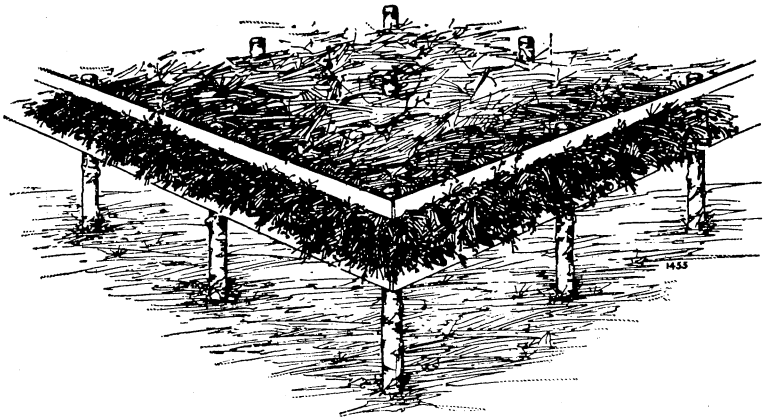


FIG. 9.—Design for artificial shade for hogs. (No. 1455)

ditions (fig. 2), hogs should not be allowed to use them as shelter from the sun. A hog will find shade if he can, but if the shady place is also hot he does not seem to realize it, and will stay there and die from overheating. Unless one is sure the buildings he has are safe in this respect it would be best to keep them closed in warm weather, forcing the hogs to get shade elsewhere.

The natural shade from trees is preferable to any other. If trees are not available, a good artificial shade should be made by setting posts and building a cheap framework about  $3\frac{1}{2}$  to 4 feet from the ground, covering it with brush, hay, or straw (fig. 9). A shade of this kind is cheaper and better than one made with boards or sheet iron. If dust accumulates under the shade the covering should be made wet by supplying water from a hose or bucket. This serves the double purpose of cooling the air and settling the dust.



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14

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